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Prepared by City of Broomfield
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FACT SHEET

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SUBJECT: Rocky Flats' Impact on Great Western Reservoir

GENERAL: The Rocky Flats Plant is located immediately west of Great Western Reservoir. A vicinity map is Attachment 1 to this Fact Sheet. The plant is owned by the U.S. Department of Energy and operated by Rockwell International Corporation. The reservoir is owned and operated by the City of Broomfield, and routinely provides drinking water for approximately half of the City's 28,000 people. At some times, the reservoir has been used to serve the entire population.

The plant, which produces components for nuclear weapons, has been in operation since 1952. The history of the plant is marked by numerous problems and accidents which have resulted in on and off-site environmental contamination. The past safety record and the potential for future problems, due to the deterioration of the aging facility, are grave concerns for the City of Broomfield. There are three major pathways through which Rocky Flats contamination has or could impact the City. These pathways and their dangers are outlined below.

PROBLEMS: Rocky Flats' operations have caused, or will cause, three kinds of problems for Great Western Reservoir:

1. AIRBORNE CONTAMINATION

Existing problems:

To date, airborne contamination has consisted primarily of plutonium. Two plutonium fires in the 1950's caused airborne plutonium to be blown across the Rocky Flats Plant site and adjacent properties. For a period of almost ten years, from 1958 to 1967, the continuous resuspension of contaminated soil and dust from a waste oil storage area (the 903 pad area) also released plutonium into the atmosphere. As a result of these incidents, samples from the sediment in Great Western Reservoir and the land surrounding the west and south sides of the reservoir still indicate levels of plutonium contamination higher than the state construction standard for plutonium-in-soil.

Even with the controls and monitoring equipment that have been in place at the plant site since these incidents, there is the constant potential for equipment failure and human error. Airborne tritium was released in 1986 due to human error.

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Potential future problems include:

-The long-term effects of continuous low-level radioactive stack emissions are unknown.

-Clean up activities will cause resuspension of contaminated soil.

-The Rocky Flats Plant has proposed incineration of hazardous waste on the plant site. The plan has been put on hold, but has not been abandoned. There were three fires in the incinerator during testing of the unit.

-High winds along the front range continuously scour the plant site, and cause soil contamination to migrate off-site.

2. SURFACE WATER POLLUTION

Existing Problems:

Surface water from the plant site includes supply ditches traversing the site, storm water run-off, and treated sanitary sewage from the site.

Many different substances have contaminated the surface water. Contaminants include nitrates, chromium, plutonium, tritium, PCB's and excess amounts of chlorine, BOD and fecal coliform bacteria. Sources include: solar ponds venting into the surface water in McKay ditch (nitrates); wastewater plant discharges that violated NPDES permit requirements (chlorine BOD, fecal coliforms, chromium); wastewater plant discharges of tritium (no one at Rocky Flats even knew tritium was on the plant site); a buried waste line that ruptured and seeped uranium; and an unknown source that produced a higher than normal plutonium reading in Walnut Creek in the summer of 1988.

Potential future problems include:

-Groundwater contamination may seep into the surface water drainages.

-VOC's and radionuclides may cause Broomfield's water supply to violate increasingly stringent Safe Drinking Water Act regulations.

-The Rocky Flats Plant had four consecutive months of NPDES violations in 1988. Although the EPA issues the NPDES permit, the EPA was not able to take any enforcement action against the plant.

-Open air parking lots on the Plant site are currently being used for waste container storage. Low-level radioactive mixed waste (pondcrete and saltcrete) is cemented into blocks

and stored in these parking lots. Any material that could leach from these containers will contaminate the run-off from the parking lot.

-As documented by an October, 1988, GAO report, the aging facility has many deteriorating pipes, drains, and collection systems. Recently a combination of human error and deteriorated physical plant caused toxic chromium to escape its primary and secondary containment devices. The alarm which would have detected this was shut off, for no apparent reason. What will be next? Will it be detected before it is released into Great Western Reservoir?

3. GROUND WATER POLLUTION

Existing problems:

From 1958 to 1967 waste oil drums released plutonium and VOC's into the soil. The extent of the migration of these contaminants is still under investigation.

Moreover, there are several burial trenches on the plant site that contain a variety of hazardous materials. These include plutonium, PCB's, benzene, carbon tetrachloride, dichloroethane (DCA), dichloroethylene (DCE), trichloroethane (TCA), trichloroethylene (TCE), tetrachloroethylene (PCE) and vinyl chloride.

The Plant's old process waste lines were replaced with new double-contained lines with an alarm system. However, the old lines were left in place, and various contaminants have been leaching out of these old lines for years.

Potential future problems include:

-Current hydro-geologic reports on the Rocky Flats Plant indicate there is extensive groundwater contamination at the site that is moving toward Great Western Reservoir. Estimates vary from 15 to 40 years before the contamination would reach the reservoir.

SOLUTIONS: Each problem has one or more possible solutions. These include:

1. Airborne contamination. Accessible plutonium should be removed from the surface of the ground surrounding the reservoir. The plutonium in the reservoir sediment is a more difficult problem, particularly in light of the planned reservoir expansion. It should be removed, if that can be done safely.

2. Surface water pollution. A preliminary design has been done for a diversion project which would channel all surface water from the plant around Great Western Reservoir. The preliminary cost estimate, in 1989 dollars, is approximately $31 million.

3. Ground water pollution. Interception of the pollutants moving toward the reservoir is planned and included in the projected 1990 budget for the plant. The current plan is to pump groundwater from a series of wells, treat it, and then pump it back into the ground. Whether this solution will be satisfactory remains to be seen.

4. Reservoir acquisition. By acquiring the reservoir, the DOE could eliminate all these contamination problems, and alleviate the concerns of the citizens of Broomfield.